

Application No. 10/065,217
Docket No. 17MY-7239
Amendment dated July 30, 2003
Reply to Office Action of March 31, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A castable weldable nickel-base alloy consisting essentially of, by weight, 18% to 20% cobalt, 22.2% to 22.8% chromium, 1.8% to 2.2% tungsten, 1.6% ~~greater than 1.5%~~ to 2.3% aluminum, 1.6% to 2.4% titanium, the sum of aluminum and titanium being 2.8% to 3.9 ~~4.4%~~, 0.7% to 0.9% columbium, 0.9% to 1.9% tantalum, 0.003% to 0.009% boron, 0.002% to 0.02% zirconium, 0.05% to 0.10% carbon, with the balance essentially nickel and incidental impurities.

Claim 2 (original): The alloy according to claim 1, wherein the tantalum content is above 1.5%.

Claim 3 (currently amended): The alloy according to claim 1, wherein the alloy has been solution heat treated at about 1150°C ~~1150-1100°C~~ for about four hours, quenched to below about 700°C ~~700-600°C~~, and then aged at about 800°C ~~800-850°C~~ for about eight hours.

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Claim 4 (original): The alloy according to claim 1, wherein the alloy contains about 26 to about 38 volume percent of a gamma-prime precipitate phase.

Claim 5 (original): The alloy according to claim 1, wherein the alloy is in the form of a cast nozzle of a gas turbine engine.

Claim 6 (original): The alloy according to claim 1, wherein the nozzle is installed in a second turbine stage of the gas turbine engine.

Claim 7 (currently amended): The alloy according to claim 1, wherein the alloy contains, by weight, about 19% cobalt, about 22.5% chromium, about 2% tungsten, 1.7% to 1.8% ~~about 1.75%~~ aluminum, about 2% titanium, the sum of aluminum and titanium being 3.7% to 3.8% ~~about 3.75%~~, about 0.8% columbium, about 1.5% tantalum, about 0.005% boron, about 0.005% zirconium, about 0.07% carbon, with the balance essentially nickel and incidental impurities.

Claim 8 (original): The alloy according to claim 7, wherein the alloy is in the form of a cast nozzle of a gas turbine engine.

Claim 9 (original): The alloy according to claim 7, wherein the nozzle is

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installed in a second turbine stage of the gas turbine engine.

Claim 10 (currently amended): A nozzle installed in a second turbine stage of the gas turbine engine and cast from a nickel-base alloy consisting of, by weight, 18% to 20% cobalt, 22.2% to 22.8% chromium, 1.8% to 2.2% tungsten, 1.6% ~~greater than 1.5%~~ to 2.3% aluminum, 1.6% to 2.4% titanium, the sum of aluminum and titanium being 2.8% to 3.9% ~~4.4%~~, 0.7% to 0.9% columbium, 0.9% to 1.9% tantalum, 0.003% to 0.009% boron, 0.002% to 0.02% zirconium, 0.05% to 0.10% carbon, with the balance essentially nickel and incidental impurities.

Claim 11 (currently amended): A castable weldable nickel-base alloy consisting essentially of, by weight, 5% to 8% cobalt, 22.2% to 22.8% chromium, 1.8% to 2.2% tungsten, 1.2% to 2.3% aluminum, 1.6% to 2.4% titanium, the sum of aluminum and titanium being 2.8% to 3.9% ~~4.4%~~, 0.7% to 0.9% columbium, 0.9% to 1.9% tantalum, 0.003% to 0.009% boron, 0.002% to 0.02% zirconium, 0.05% to 0.10% carbon, with the balance essentially nickel and incidental impurities.

Claim 12 (original): The alloy according to claim 11, wherein the tantalum content is about 1.5% and the aluminum content is about 1.85%.

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Claim 13 (currently amended): The alloy according to claim 11, wherein the alloy has been solution heat treated at about 1150°C ~~1150-E-E~~ for about four hours, quenched to below about 700°C ~~700-E-E~~, and then aged at about 800°C ~~800-E-E~~ for about eight hours.

Claim 14 (original): The alloy according to claim 11, wherein the alloy contains about 23 to about 36 volume percent of a gamma-prime precipitate phase.

Claim 15 (original): The alloy according to claim 11, wherein the alloy is in the form of a cast nozzle of a gas turbine engine.

Claim 16 (original): The alloy according to claim 11, wherein the nozzle is installed in a third turbine stage of the gas turbine engine.

Claim 17 (currently amended): The alloy according to claim 11, wherein the alloy contains, by weight, about 6.5% cobalt, about 22.5% chromium, about 2% tungsten, about 1.85% aluminum, about 2% titanium, the sum of aluminum and titanium being 3.7% to 3.8% ~~about 3.75%~~, about 0.8% columbium, about 1.5% tantalum, about 0.005% boron, about 0.005% zirconium, about 0.07% carbon, with the balance essentially nickel and incidental impurities.

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Claim 18 (original): The alloy according to claim 17, wherein the alloy is in the form of a cast nozzle of a gas turbine engine.

Claim 19 (original): The alloy according to claim 17, wherein the nozzle is installed in a third turbine stage of the gas turbine engine.

Claim 20 (currently amended): A nozzle installed in a second turbine stage of the gas turbine engine and cast from a nickel-base alloy consisting of, by weight, 5% to 8% cobalt, 22.2% to 22.8% chromium, 1.8% to 2.2% tungsten, 1.2% to 2.3% aluminum, 1.6% to 2.4% titanium, the sum of aluminum and titanium being 2.8% to 3.9% ~~4.4%~~, 0.7% to 0.9% columbium, 0.9% to 1.9% tantalum, 0.003% to 0.009% boron, 0.002% to 0.02% zirconium, 0.05% to 0.10% carbon, with the balance essentially nickel and incidental impurities.